

American Museum Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, N. Y. 10024

NUMBER 2343

AUGUST 29, 1968

Birds of the Schrader Mountain Region, New Guinea Results of the American Museum of Natural History Expedition to New Guinea in 1964

BY E. THOMAS GILLIARD¹ AND MARY LECROY²

INTRODUCTION

For some five months in 1964, the late E. T. Gilliard carried out field work in various parts of New Guinea. He spent approximately one month, from April 21 to May 25, in the region of the Schrader Mountains, an isolated range forming the height of land between the Sepik and Ramu rivers in northern New Guinea. Gilliard's survey in this region was divided into two parts. The first part of the time was spent in collecting in moss forest on Mt. Kominjim; the second part, in grasslands around the Aiome Patrol Post at the northern base of the mountains (fig. 1).

Historically, the avifauna of these areas has been known from several previous collections. From 1912 to 1913 Joseph Bürgers collected birds on the "Deutschen Kaiserin-Augustafluss-Expedition 1912-13" (see Stresemann, 1923). That expedition collected at various localities along the Sepik River and its tributaries, and Bürgers spent the period from May 20

¹ Late Curator, Department of Ornithology, the American Museum of Natural History.

² Research Assistant, Department of Ornithology, the American Museum of Natural History.

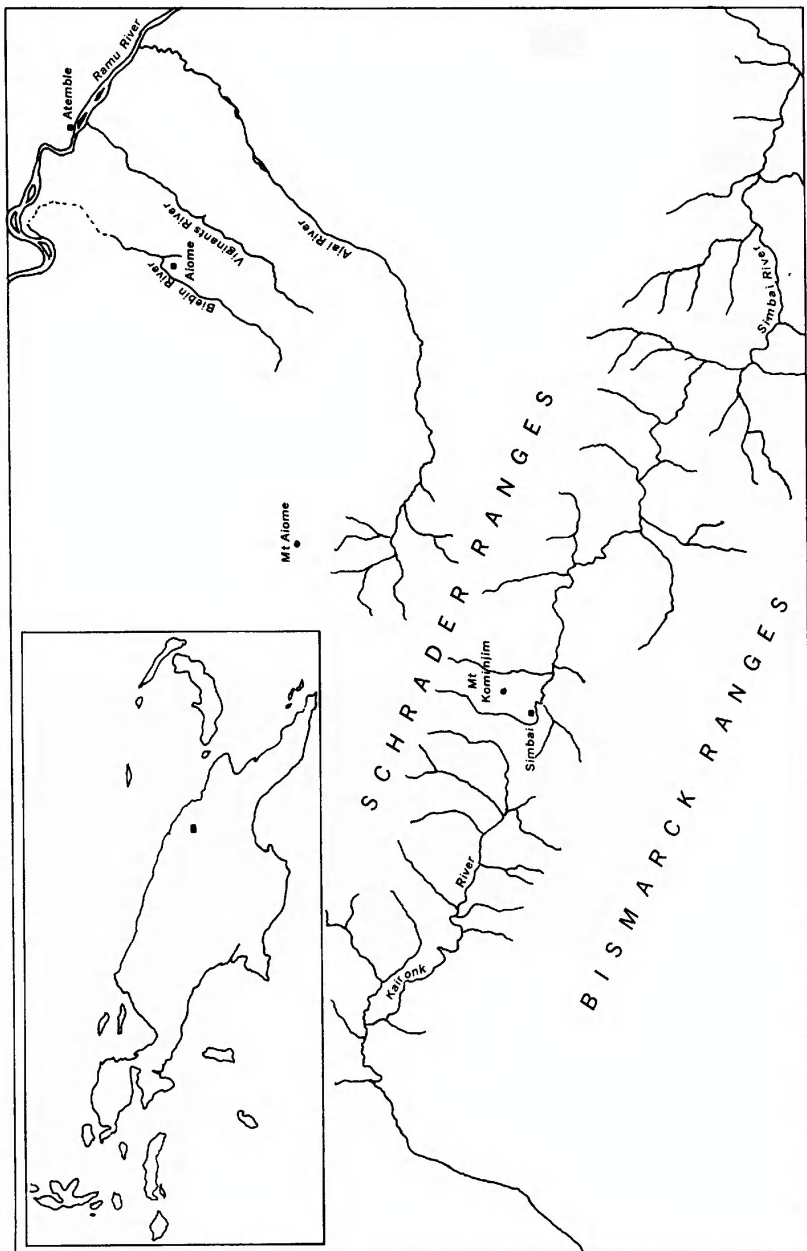


FIG. 1. The area of the Schrader Mountain region in New Guinea surveyed by the 1964 expedition.

to June 13, 1913, on the 6700-foot Schraderberg, west of the area surveyed by Gilliard. The expedition as a whole collected more than 3100 specimens of 240 species; 49 species were obtained on the Schraderberg. These specimens are in the Zoologisches Museum, Berlin.

Ornithological collections were not made again in the Schraders until 1960, and in 1963–1964 and 1965–1966, when Ralph Bulmer, of the University of Auckland, collected approximately 80 species in conjunction with his anthropological studies in the area of the Kaironk River Valley. The Kaironk River is a tributary of the Jimmi River and flows through a valley, 5000 to 7000 feet above sea level, which divides the Bismarck Range from the Schraders (Bulmer and Tyler, MS). The specimens he collected will be deposited with the Commonwealth Scientific and Industrial Research Organization, Canberra.

The lowlands of the Ramu River had been explored by Lauterbach, Kersting, and Tappenbeck on the I Ramu Expedition of 1896 (Reichenow, 1897a, 1897b, and 1898) and by Tappenbeck in 1898 and 1899. The I Ramu Expedition went overland from the village of Bogadjim on the coast of Astrolabe Bay to the upper Ramu River, and from there downstream to the area of the river at the foot of the Schraders, at which point scanty provisions forced them to return. It was on this expedition that *Chlamydera lauterbachii* was discovered. The specimens from this expedition, as well as those collected later by Tappenbeck, were deposited in the Zoologisches Museum, Berlin (Stresemann, 1923).

COLLECTING LOCALITIES

SIMBAI PATROL POST, CAMPS 1 AND 3: The Simbai Patrol Post is on the southeastern flank of the Schrader Mountains in the valley of the Simbai River at an altitude of 5700 feet. The grasslands of the valley of the Simbai River are continuous with those of the Kaironk River Valley on the west and the Ramu River Valley on the east. The height of land between the Kaironk-Jimmi-Yuat-Sepik drainage and the Simbai-Ramu drainage is at this locality a grass-covered divide, 6600 feet in altitude at its lowest point (Bulmer and Tyler, MS), separating the forests of the Bismarck and Schrader ranges.

The flight from Madang to Simbai is spectacular, with aerial views of the Gogol River, the Adelbert Mountains, the Ramu River, and lowlands. The approach to Simbai is across a forested cliff top, beyond which the airplane dips down sharply, crosses three ridges, and drops onto a 2000-foot airstrip that ends against the mountains.

Only a small number of specimens was collected in the vicinity of this

patrol post, as only a little time was spent in the area. Most of the birds from this locality were collected by local natives in the valley below the patrol post. Thus, the designation of altitude at 5000 feet, which appears on the labels of these specimens, is only approximate.

MT. KOMINJIM, CAMP 2, APRIL 23 TO MAY 4: The expedition camp was at about 7600 feet, with a native-built hut at about 8300 feet, on the southern side of and about 300 feet lower than the actual summit. The climb from Simbai to the 7600-foot level required four and a half hours because of the poor condition of the trail. The forest was extremely wet, with dripping moss and soaked humus, and the trail was slippery and dangerous.

During the expedition's stay on Mt. Kominjim the days were usually clear. It always rained at night, however, sometimes quite hard, and the rain was usually accompanied by thunder and lightning. Mornings were frequently foggy and cold, with the forest dripping wet, but at about 11 A.M. the sun would break through intermittently, and there would be as much as three hours of hot sun in the afternoon. Throughout the day, if it was sunny, rafts of clouds would suddenly swoop down from the summit, cast recurrent shade, and bring occasional showers over the camp. The Schrader Mountain mass fronts on the great Ramu Valley to the north, and clouds blown inland from the sea encounter their first obstacle in these mountains. These clouds frequently spill over and move on downdrafts part way down the southern side of the range, but usually one could look down through breaks in the clouds to Simbai, about 2000 to 3000 feet below, and see the sun shining.

Dusk was usually rain-laden, and, as noted, it rained for at least two hours every night. The nights were cold, with near-freezing temperatures.

The trails over which the expedition hunted were sodden masses of mud, and a little use turned them into virtual morasses. Shoes with long metal spikes were an absolute necessity. Rubber cleats were dangerous, as they tended to "skate" on the slippery higher spots onto which one stepped to avoid the muddy water in between.

One severe earthquake was experienced on April 24 at 3:56 P.M. The following notes are quoted from Gilliard's field journal:

"For one minute an earthquake of extraordinary strength struck our camp. . . . The earth seemed to vibrate in about six-inch rapid lurches like a horse flexing to shake away insects. Then followed about a half minute of even undulations, which felt like even ripples under my bare feet. The whole sensation was as though I were standing on a boat which was rapidly and violently lurching in cross currents of water.

"I was amazed to discover that virtually everything in our three-tent

encampment had been upset or displaced. Field trunks placed on log poles to keep them off the wet ground were all off at least one log. My skinning gear was flung off the table (all but the scale), and I had to hunt for many minutes to recover my tools.

"The earthquake began with a whiplike jerk; it did not build up in intensity but seemed suddenly to lurch out at maximum intensity like a snapped bow."

On April 30 heavy rains and cyclonic winds were experienced. Limbs snapped off trees, and the cold was so severe that the expedition party had to protect their ears when they were forced to go outside. Trees had been felled around the camp, but the winds were of such force that these forest giants with their tons of water-laden moss would have probably fallen with the wind, rather than in the direction gravity would have taken them.

"[The actual summit of Mt. Kominjim is] a large flat area, varying in width from a rather narrow ridge to a flat area hundreds of yards (if not more) in width. The level part is about one-third of a mile long. It is covered everywhere with tall, heavily mossed forest growth. Some trees are very tall (100 feet); often, though, there are open areas with an undergrowth of 30- to 40-foot spindly trees, also all heavily sheathed in moss. The forest floor is moss-covered. Some huge fallen trees clutter the flat area. Tree ferns are very numerous as are . . . pandanus trees. It is clear from the appearance of this wonderful cloud forest that it must be deluged with rain almost daily. I wish I had been able to put up my main collecting camp on the summit. As it is, I missed by only about 300-400 feet. Future travelers and collectors will be well advised to push through to the top, because once there they will find a level area of considerable size on which to work. Sky water can be relied upon, and I think there would be no problem in maintaining a camp on the summit indefinitely. In fact it is ideal for the botanist and zoologist of future expeditions to the Simbai region."

Near the summit, expedition natives built a hut with a pandanus roof, leaf walls woven between saplings planted upright, and a thick floor of fern leaves. The house was so tight that one could hardly see out, and very little cold wind came in. All about were specially planted, oily pandanus trees and the remains of a native camp, which showed that even this remote summit is regularly visited by the local woodsmen.

AIOME GRASSLANDS, CAMP 4, MAY 5-26: The flight from Simbai to Aiome was over well-populated hill country, the Simbai River, and patches of grassland. The Aiome Patrol Post is situated in this grassland, several miles back from the Ramu River and away from the swamps

which occur nearer the river. There is an abrupt change of climate from the cold of Mt. Kominjim and the cool of Simbai to the tropical heat of Aiome. The grasslands are composed of kunai grass dotted with islands of low bushy trees here and there. There are abundant populations of death adders in this grass and some care must be taken to avoid them as the bite is almost invariably fatal.

The local natives are lethargic and difficult to deal with. Talk, rewards, and even bribes do not tempt them; requests for information or specimens are simply ignored.

ACKNOWLEDGMENTS

The senior author received many courtesies while in the field. Particular thanks are due to Sir Donald Cleland, the Administrator of Papua and the Territory of New Guinea; Mr. Kingsley Jackson, District Commissioner at Madang; Mr. C. A. J. Symons, now Regional Local Government Officer at Madang; and Patrol Officer Gavin Carter at Simbai and Patrol Officer Ivers Smithmanis at Aiome. Each of these men through his interest and helpfulness contributed much to the success of the expedition. In addition, numerous residents of Madang helped in various ways to expedite the field work. Father and Mrs. Peter Olive and Mr. Hugh Pryor of the Anglican Mission at Simbai; Mr. Don Gafney, government school teacher at Aiome, and Mrs. Gafney; and the Reverend Father Daniel Fowler and Mr. David Dryden of the Anglican Mission at Aiome also aided the expedition in numerous ways.

Native assistants to the expedition were, as in several previous expeditions: Rambur, Mava, and Bowie, inhabitants of Kanganaman Village on the Sepik River.

The junior author particularly wishes to thank those persons who have helped her in the preparation of this manuscript for publication after the death of Dr. Gilliard. Special thanks are due to Dr. Dean Amadon, whose careful reading of the manuscript and helpful suggestions have contributed much to the final version. Thanks are also due to Mrs. Margaret Gilliard Person for her continued encouragement, and to Dr. Jared Diamond for helpful discussions.

Dr. Ralph Bulmer of the University of Papua-New Guinea at Boroko, formerly of the University of Auckland, very kindly allowed us the use of his notes, many of which are unpublished, on the Kaironk Valley, west of Simbai, where he had spent much time studying the Karam culture, and on *Melidectes belfordi* and *M. rufocrissalis* which

he collected and observed in that area. He also supplied an unpublished detailed regional map prepared for him by K. M. Peters of the University of Auckland. Mr. C. A. J. Symons, Regional Local Government Officer at Madang, also supplied several useful maps of both the Simbai area and of the area around Aiome.

Thanks are also due to Miss Marianna Neighbor for preparing the manuscript for the editor.

Financial support from the National Geographic Society and the American Museum of Natural History is gratefully acknowledged.

ANNOTATED LIST OF BIRDS COLLECTED IN THE SCHRADER MOUNTAIN REGION

Vernacular English names are given for each species, and native names follow, in some cases, after a semicolon. The names of species observed but not collected are enclosed in brackets. All measurements are in millimeters, and weights are in grams. Brackets around the sex designation of a bird indicate that the determination of sex was made in the laboratory, not by dissection in the field.

A list of species of which specimens are preserved in alcohol is given at the end of the Annotated List.

The following birds were collected by Gilliard on Mt. Kominjim but were not obtained by Bürgers on the Schraderberg:

Accipiter melanochlamys
Rallacula forbesi
Ptilinopus rivoli
Gallicolumba beccarii
Collocalia esculenta
Collocalia hirundinacea
Coracina longicauda
Melampitta lugubris
Acanthiza murina

Gerygone cinerea
Gerygone ruficollis
Phylloscopus trivirgatus
Peneothello sigillatus
Rhagologus leucostigma
Epimachus meyeri
Daphoenositta miranda
Melidectes belfordi
Paramythia montium

ARDEIDAE

[*Egretta intermedia* subspecies?]

LESSER EGRET

The following quotation is taken from Gilliard's ornithological journal for May 15 at Aiome: "In early morning after heavy rain in night [a Lesser Egret] was seen flying two feet up over grass-covered airfield. It passed near a cluster of white pyramid airfield markers, perhaps decoyed down by them."

ACCIPITRIDAE

[*Accipiter fasciatus* subspecies?]

AUSTRALIAN GOSHAWK

Accipiter melanochlamys schistacinus (Rothschild and Hartert)

BLACK-MANTLED GOSHAWK; DITCHIP

One male of this uncommon species was collected in the summit forest of Mt. Kominjim at 8500 feet. It was shot while perched on a bush 2 feet above the ground. The area was heavily overgrown with vines, epiphytes, and moss-covered trees, up to 90 feet in height. Records in the literature of the food of this species mention only frogs and insects, except that Ripley (1964, p. 18) noted that the hawking activities of an individual caused concern among weaver birds and swamp warblers. It is of interest, then, that the stomach contents of this specimen consisted of a mass of feathers and flesh, which could not be identified.

The iris was bright scarlet-orange, and the cere, the skin around the eye, and the skin under the feathers at the gape were yellow. The bill and tongue were lead-gray, and the feet were orange-yellow. Weight: 244. Wing: 211.

PHASIANIDAE

[*Synoicus ypsilophorus* subspecies?]

BROWN QUAIL

RALLIDAE

Rallacula forbesi subspecies?

FORBES'S CHESTNUT RAIL; KUNG-AH

One male was obtained on the summit of Mt. Kominjim at 8600 feet. It was observed alone on the floor of steep mountain forest. Weight: 106.

Our bird agrees in color with the subspecies *steini*, but the tail is missing, and definite subspecific identification cannot be made.

COLUMBIDAE

Ptilinopus coronulatus quadrigeminus Meyer

LITTLE CORONETED FRUIT DOVE

Our one male, collected near Aiome at 300 feet, was apparently

one of a pair in the upper limbs of a tall tree growing in the edge of a native garden. Weight: 78.

Ptilinopus iozonus jobiensis Schlegel

ORANGE-BELLIED FRUIT DOVE

Two males and one female were obtained near Aiome at 300 feet. One male and one female had enlarged gonads. Weight: Males, 108, 115; female, 110.

Ptilinopus rivoli bellus Sclater

WHITE-BREASTED FRUIT DOVE; KOITER

This species was rather common in the 7500- to 8500-foot area of Mt. Kominjim. Our male was shot from the crown of mountain forest. Weight: 163.

Megaloprepia magnifica septentrionalis Meyer

MAGNIFICENT FRUIT DOVE

One male was collected at 200 feet, near Aiome. Weight: 181.

Ducula pinon subspecies?

PINON IMPERIAL PIGEON

Aiome.

Gymnophaps albertisii albertisii Salvadori

MOUNTAIN PIGEON

The following quotation is taken from Gilliard's ornithological notes for April 29: "Each day for the week that we have been camped here in tall mountain rain forest, this species has visited the tallest trees overhead. About three to 12 birds per day have been seen. Usually they are out of range but occasionally one will perch 80 feet up (or so).

"Usually the birds arrive noisily, flying over the crown of the luxuriant moss-festooned rain forest on whistling wings. (The primaries cleave the air like a whip, causing a singing noise that is unique.) The flight is very rapid, even for a pigeon. Sometimes part of the flock will move off to an adjacent tree, but the cohesion of the flock is such that only rarely does one see a solitary bird."

Macropygia nigrirostris nigrirostris Salvadori

BLACK-BILLED CUCKOO-DOVE; Kourit

Both of our specimens are preserved in alcohol. A [male] was

obtained in the Simbai Valley at 6000+ feet. A [female], of which we have only the head, was obtained at Aiome. Weight: 75.

Reinwardtoena reinwardtsi griseotincta Hartert

GREAT CUCKOO-DOVE

Aiome.

Gallicolumba beccarii beccarii (Salvadori)

BECCARI'S GROUND DOVE

One specimen was collected at 8300 feet on Mt. Kominjim.

Gallicolumba jobiensis jobiensis (Meyer)

WHITE-BREASTED GROUND DOVE

At Aiome one male was shot as it perched near the ground in a small tree in secondary scrub. Weight: 134. An immature female was also collected. Comparison with other immature birds of the same species showed a similarity in color, which was rather dark brownish gray with an oil-green sheen on the upper back and with chestnut tips on the feathers over much of the body. It differed in having the throat gray, not white or buffy. Weight: 104.

PSITTACIDAE

Oreopsittacus arfaki grandis Ogilvie-Grant

PLUM-FACED MOUNTAIN LORY; WUN-DIN-YUNK

One male was collected at 8300 feet on Mt. Kominjim. Weight: 21.

Neopsittacus pullicauda pullicauda Hartert

ORANGE-BILLED MOUNTAIN LORY; HA-MEN-GIS

Our four specimens, all males, were obtained between the altitudes of 7600 and 8400 feet on Mt. Kominjim. Weights: 36-44.

Micrositta pusio beccarii (Salvadori)

BUFFY-FACED PYGMY PARROT

One male was collected near Aiome at 300 feet. Weight: 13.5.

[*Cacatua galerita* subspecies?]

SULFUR-CRESTED COCKATOO

Gilliard observed and made recordings of seven birds in a close-knit flock in and around a betel-nut palm growing in thick secondary forest in a gorge just west of the Aiome airfield.

Larus rostratus pectoralis (Müller)

RED-SIDED ECLECTUS PARROT

One male was collected at Aiome.

Geoffroyus geoffroyi minor Neumann

RED-CHEEKED PARROT

Our two specimens, both males, were collected at Aiome.

Psittacella brehmii subspecies?

BREHM'S PARROT; MIAP

We have one [female] of this solitary species, taken at 7600 feet on Mt. Kominjim. Wing: 116; tail: 80. Weight: 45.

Reichenow (1918) described the subspecies *buergersi* from the Schraderberg. The type is a female. The male is still unknown. Our bird, in female plumage, has been compared with the subspecies of *P. brehmii* other than *buergersi*, of which we have no specimens. It is closest to *pallida* from southeastern New Guinea, and differs by having the top of the head somewhat darker and the sides of the head grayer. It differs from all of the specimens examined by having a turquoise wash on the lower abdomen. The bill is more slender than the average for each of the other subspecies, but there is considerable overlap in this character.

We could reach no decision on the validity of the race *buergersi*. Possibly the turquoise wash is merely an individual variation, since it is not mentioned by Reichenow. If further collecting shows such to be the case, then the validity of the subspecies could be seriously questioned.

CUCULIDAE

Scythrops novaehollandiae Latham

CHANNEL-BILLED CUCKOO

Our single male was collected at 300 feet at Aiome.

Centropus menbeki menbeki Lesson

GREATER COUCAL

Aiome.

APODIDAE

Collocalia esculenta subspecies?

GLOSSY SWIFTLET

On April 29 a nest containing two young was brought into camp

on Mt. Kominjim. It was one of three nests found in a hollow in a rock in deep mountain forest at about 7000 feet. All three nests were fastened to the rock and were far inside in a dark place. The rock was on the side of a steep hill; there was no water nearby.

The young were preserved in alcohol.

Collocalia hirundinacea hirundinacea Stresemann

MOUNTAIN SWIFTLET; MAIN-YI-NIP

Our two specimens, a male and a female, from 7000 and 8300 feet on Mt. Kominjim, belong to this species. Both have small bills, solid black superciliary and under-wing coverts, much concealed white in the plumage of the back, and feathered tarsi.

Male: wing, 113; outermost tail feather, 48; central tail feather, 41; tail index,¹ 42.5. Female: wing, 116; tail in molt. Weights: 10, 10.

In their smaller size and darker coloration these birds approach the subspecies *baru* from Japan Island. They are darker than recently collected birds from the Victor Emanuel and Hindenburg ranges, particularly on the sides of the head and the throat, but some birds from the mainland of New Guinea are as dark as our specimens, and wing measurements vary from 114 to 123.5 for the subspecies *hirundinacea*. Apparently, therefore, our birds fall within the range of variation of the nominate race.

A nest, probably of this species, with two young, was taken at about 6000 feet on Mt. Kominjim on April 29. It was one of two nests found in a dry cave at the edge of a stream. The nests were attached to dry mud. The young were preserved in alcohol.

Collocalia vanikorensis granti Mayr

LOWLAND SWIFTLET

A flock of about 40 swiftlets of this species swept above the Aiome grass air strip from 6:10 to 6:20 P.M. on May 10. The following are Gilliard's observations: "The Swiftlets kept together very closely, once wandering off out of sight for several minutes, then returning for several more minutes, during which time they repeatedly circled about me in their 'hawking' activities. Their chief feeding zone extended from about 1 foot above the low-cut grass to about 75 feet above it. Their flight is quite fast, much faster than that of *C. esculenta*, and quite erratic."

Our six specimens: wing: 116-120. Weights: 11-12.

All but one of our specimens are definitely this species, with the

¹ The tail index is the ratio of the longest tail feather to the wing length (see Mayr, 1937, p. 3).

larger bill, bare tarsi, lighter under parts, and little concealed white on the back of the lowland species. One specimen, in poor condition and heavy molt, appears to be darker underneath than the others, but it has the other characters of *vanikorensis*.

ALCEDINIDAE

Melidora macrorhina jobiensis Salvadori

HOOK-BILLED KINGFISHER

One male was collected on the floor of steep hill forest at about 500 feet, near Aiome. Its stomach contained the remains of what was probably a walking-stick insect. Weight: 107.

Dacelo gaudichaud Quoy and Gaimard

RUFIOUS-BELLIED GIANT KINGFISHER

Two males were collected at Aiome. Weights: 138, 145.

Halcyon sancta sancta Vigors and Horsfield

SACRED KINGFISHER

Our only specimen is a male collected at Aiome. Weight: 43.8.

Tanysiptera galatea subspecies?

COMMON PARADISE KINGFISHER

Our single specimen, collected at Aiome, is an immature, sex unknown. Weight: 50.

MEROPIDAE

Merops ornatus Latham

RAINBOW BEE-EATER

This species was common in small groups in the tops of bushes in grasslands and forest edge around Aiome. One male(?): weight: 33.

CORACIIDAE

Eurystomus orientalis pacificus (Latham)

DOLLAR BIRD

One female was collected at Aiome. Weight: 179.

BUCEROTIDAE

Aceros plicatus ?junpei Mayr

PAPUAN HORNBILL

Aiome.

HIRUNDINIDAE

[*Hirundo tahitica* subspecies?]

PACIFIC SWALLOW

Gilliard frequently observed this species flying in groups of two or more close to the grass of the airfield at Simbai, over cane-grass swamps, and close to the surface of the Simbai River.

Hirundo nigricans nigricans Vieillot

TREE MARTIN

Two specimens were collected at Aiome, one male, one sex?. The following notes are quoted from Gilliard's journal: "This morning at 7 A.M. and again this afternoon when I passed the Aiome airfield I observed this swallow hawking for insect food close above the airfield and the station gardens bordering it. Often it flew well beneath the bush level, going down out of sight in little gullies. In the afternoon I found it flying in company with a small number of collocalias which I think almost surely were *C. vanikorensis* (of which yesterday I shot nine in the same spot without seeing a single swallow).

"There were at least 10 swallows in the flock. None was seen to perch, and their manner of feeding was so similar to that of the Collocalia that my native guide considered the two species to be one and the same."

CAMPEPHAGIDAE

Lalage atrovirens atrovirens (Gray)

BLACK-BROWED TRILLER

One immature male and one female were collected at Aiome. Weights: 34, 34.5.

The immature male is, like the female, dark gray on the back and head, with black on the central portion of each feather, giving a mottled effect. Some of the glossy blue-black feathers of the adult plumage are appearing. On the under parts the abdomen, chin, and throat are white as in the adult male, but there is light barring on the breast and sides.

Coracina melaena melaena (Lesson)

BLACK GRAYBIRD

Our two males are from Aiome at 300 feet. Weights: 53, 57.

Coracina tenuirostris muellerii (Salvadori)

LONG-BILLED GRAYBIRD

One immature male was obtained at Aiome. It is molting into the adult plumage from the brown female-like plumage of the immature. Weight: 70.

Coracina montana (Meyer)

BLACK-BELLIED GRAYBIRD; SEEN-YEN-SAGAR

Our only specimen is a male from 8300 feet on Mt. Kominjim. Weight: 75.

A flock of these graybirds was observed for several days over the expedition camp. Their arrival was heralded by screechy whistles. They appeared in groups, flying close together and all screeching. The flight was direct, interspersed with glides in which the large wings were extended and widely cupped. They landed in the highest limbs and sat silently for a time, then one by one flew to a nearby tree. Their call was a raspy, shrill whistle repeated about five times.

In the trees Gilliard observed "two moving very rapidly among the small limbs and crown leaves. They darted along horizontal branches, seeming to run, then leaped into short flights to flutter amongst and under small leaves, apparently hunting insect food. Their method of fluttering in small leaves, away from perches large enough to hold them, was surprising and reminded me of *Irena* in the Philippines.

"One was observed to utter gurgling whistles and each time open its wings widely, bow and raise the tail, while perched on a high limb. Its whistles (if not its bows) were answered from a nearby tree."

The display call was an exaggerated version of the squeaky-wheel whistles that the flock gives in flight.

Coracina longicauda subspecies?

BLACK-HOODED GRAYBIRD; SEEN-YEN

We have one [female] and one [male; head only] preserved in alcohol from Mt. Kominjim at 7600 feet. Weights: [male], 101; [female], 104.

TURDIDAE

Saxicola caprata aethiops (Sclater)

PIED CHAT; URU-MEIN

One specimen, a male, was collected in the Simbai Valley at 5000 feet. Wing: 77; tail: 57. Weight: 20.5. The measurements of this male are at the upper limits of those given by Mayr and Gilliard (1951, p. 8)

for *aethiops*, and further collecting, particularly of females, is needed before identification can be certain.

Two individuals, one in female plumage, were observed together on the surface of the Simbai airstrip. They stood in one spot upright and still for 10 seconds or longer. At times they made short hopping excursions over the grass in pursuit of insects.

TIMALIIDAE

Melampitta lugubris subspecies?

LESSER MELAMPITTA; KAUSIUNK

Our only specimen is a male from 7500 feet on Mt. Kominjim. The tail is in heavy molt, but nevertheless measures 59.5. The bird most probably belongs to the race *longicauda* (see Mayr and Gilliard, 1952b, pp. 1-2, for measurements). Weight: 46.

The stomach contents of our specimen consisted of two small snail shells, a thin bone about $\frac{1}{2}$ inch long (probably from a small frog), and insect remains.

Crateroscelis robusta robusta (De Vis)

MOUNTAIN MOUSE-BABBLER; KO-SUP

Three specimens were collected between 7600 and 8300 feet on Mt. Kominjim. Two were females; one was a male(?). The male(?) lacks the slaty breast band and is probably an immature; our specimens agree in every other respect with *robusta*, and a male was collected by Bürgers on the Schraderberg which did have the breast band. Weights: 16, 16.5, 18.5.

Ifrita kowaldi kowaldi (De Vis)

BLUE-CAPPED BABBLER; SEL-LEG-YA-GART

Our male and female from Mt. Kominjim at 8300 feet agree well with specimens of *kowaldi* from central and eastern New Guinea. The one specimen from Schraderberg referred to by Mayr and Gilliard (1954, p. 345) has indeed foxed and is much more brownish olive above than our freshly collected specimens.

MALURINAE

Malurus alboscapulatus tappenbecki Reichenow

BLACK-AND-WHITE WREN WARBLER

We have three specimens of this species: a male from Aiome at 300 feet (wing, 46; tail, 40) and two females from the Simbai Valley at

5000 feet. Weights: male, 8.8; females, 9, 9.5.

Reichenow (1897b, p. 25) described the race *M. a. tappenbecki* from the Jagei River. Our male from Aiome is virtually topotypical. The females from Simbai are of considerable interest. Although the wings of both specimens are in molt, they measure 49 and 50 mm. (the wing of the type measures 46; Reichenow, *loc. cit.*). The tail of one specimen is missing. The tail of the other female is in molt, but measures 53 mm. (the tail of the type measures 47; Reichenow, *loc. cit.*). Thus it seems that there may be an increase in size with increase in altitude in this species in the Schrader Mountains, as there is in southeastern New Guinea, where the altitudinal representatives are considered subspecifically distinct (*M. a. naimii* and *M. a. mafulu*, see Mayr and Rand, 1935, p. 10).

SYLVIINAE

Cisticola exilis diminuta Matthews

FANTAIL WARBLER

Our three males from Aiome were in breeding plumage. Weights: 7.5, 7.5, 8.3.

Sericornis nouhuysi stresemanni Mayr

LARGE MOUNTAIN SERICORNIS; SEN-YEN, KO-SUP

Our five specimens (three females, two sex?) were collected on Mt. Kominjim between 7600 and 8300 feet. They appear slightly darker on the back than specimens of *stresemanni* from the Victor Emanuel and Hindenburg mountains and the Central Highlands. Weights: 13.5–16.

Sericornis perspicillatus Salvadori

BUFFY-FACED SERICORNIS; SU-KAIK

One male was collected in the Simbai Valley at 5000 feet. Weight: 8.

Sericornis papuensis buergersi Stresemann

PAPUAN SERICORNIS; SEN-YEN

Our two specimens from Mt. Kominjim are both males, collected between 8300 and 8500 feet. One was shot from a party of small birds, including others of this species. Weights: 12, 12.

Acanthiza murina (De Vis)

DE VIS TREE WARBLER; SEN-DU-WAY-WAY

One male from Mt. Kominjim, 8300 feet. Weight: 9.

Gerygone cinerea Salvadori

GRAY GERYGONE WARBLER; SINOJUWEI

One male, one female, one sex? were collected at 8300 feet on Mt. Kominjim. Weights: 7, 8.5, 8.5.

This is a rare or very local species in the Schraders. It was found among the leaves and small branches at the ends of limbs in the middle tier of mountain rain forest.

Gerygone magnirostris affinis Meyer

SWAMP GERYGONE WARBLER

One male was collected at Aiome.

Gerygone ruficollis insperata De Vis

TREE-FERN GERYGONE WARBLER; SEN-DU-WAY

Our male from Simbai (5000 feet) was one of a flock of four in a casuarina tree in grassland. Weight: 7.

Phylloscopus trivirgatus giulianettii (Salvadori)

LEAF WARBLER; FIN-NES

Two males were collected: one at 5000 feet in the Simbai Valley, and one at 8300 feet on Mt. Kominjim. The Simbai specimen was about 25 feet up in a clump of casuarinas growing in grassland; the Mt. Kominjim bird was about 70 feet up among the small leaves in the crown of mountain forest. Weights: 9, 9.7.

MUSCICAPINAE

Rhipidura threnothorax threnothorax Müller

SOOTY THICKET FANTAIL

Aiome.

Rhipidura rufidorsa rufidorsa Meyer

GRAY-BREASTED RUFOUS FANTAIL

Our female from Aiome was found in the lower third of tall rain forest. Weight: 9.

Rhipidura brachyrhyncha devisi North

DIMORPHIC RUFOUS FANTAIL; DOROM-BENK

One male was collected at 8300 feet on Mt. Kominjim. Weight: 10.5.

Rhipidura atra subspecies?

BLACK FANTAIL

Our only specimen is a [female] preserved in alcohol. It was obtained at 8300 feet on Mt. Kominjim. This species is often seen in the edges of clearings cut in the forest. At dusk it ventures out onto the fallen trees of the clearing itself.

Rhipidura albolimbata subspecies?

WHITE-EARED FANTAIL

Our male from 8300 feet on Mt. Kominjim (wing, 83 mm.) lies in the middle of the clinal extremes in size. For this reason and because there is much overlap in color differences, we believe that definite subspecific identification is not possible. In fact, in this species subspecies should possibly be discarded altogether (see Gilliard and LeCroy, 1961, p. 53). Weight: 11.

Gilliard “. . . observed this species in a wave of small birds in the crown of steeply sloping mountain forest. The White-eared Fantail moved nervously on small limbs (1 inch and less) just under the crown. Often it hopped along sloping limbs switching and fanning the disproportionately large tail, its wings loose and drooped and its tail often cocked up at a steep angle. When it flew it moved only short distances to nearby limbs. Once I observed another bird suddenly leap into flight, hawk for an insect in flight some 10 feet distant, then return to a nearby limb.”

Rhipidura leucophrys melaleuca (Quoy and Gaimard)

WILLIE WAGTAIL

One male was collected at 5000 feet in the Simbai Valley. Weight: 27.5.

Monarcha alecto chalybeocephalus (Garnot)

SHINING MONARCH FLYCATCHER

One male and a male(?) came from 300 feet at Aiome. The male(?) is in immature plumage. Weights: 24, 26.

Monarcha guttula (Garnot)

SPOT-WINGED MONARCH FLYCATCHER

Our two males are from Aiome. Weight: 19.

Monarcha chrysomela aurantiacus Meyer

BLACK-AND-YELLOW MONARCH FLYCATCHER

Three specimens were collected at Aiome. Weights: 18, 18.8.

Arses telescopthalmus insularis (Meyer)

FRILLED FLYCATCHER

Two males from Aiome. Weights: 18.5, 20.

Myiagra cyanoleuca (Vieillot)

SATIN MYIAGRA FLYCATCHER

This flycatcher, a migrant from Australia, is apparently rare in northern New Guinea. The only previous record of which we are aware is a specimen collected at Hollandia (Rand, 1942, p. 482). Our specimen, collected at Aiome, is an adult male. Weight: 11.5.

Machaerirynchus nigripectus saturatus Rothschild

BLACK-BREASTED FLATBILL FLYCATCHER; SU-MOD-DI-NAB-NAB

One male and two females from Mt. Kominjim. Weights: 12-13.

Microeca papuana Meyer

PAPUAN MICROECA FLYCATCHER; FIN-NES

Our four specimens (one male, three females) are from Mt. Kominjim. They were all found in the crown or subcrown of mountain forest. Weights: 12, 13.5, 13.5, 14.

Peneothello sigillatus sigillatus (De Vis)

WHITE-WINGED THICKET FLYCATCHER; UR-U-MIN

Two males and one female were collected on Mt. Kominjim. Male: wing, 94; tail, 69. Female: wing, 88; tail, 61. Weights: 22, 24, 24.

These birds agree with *sigillatus* and differ from *hagenensis* in having relatively extensive black tips on the white secondaries. They lack the white on the sides of the chest that is present in *quadrимaculatus*.

Two immature specimens are preserved in alcohol.

Peneothello cyanus subspecies?

SLATY THICKET-FLYCATCHER

One specimen of this species (now in alcohol) was obtained near Simbai. Weight: 24.

Rhagologus leucostigma obscurus Rand

MOTTLED WHISTLER; KEY

One [female] was collected at 8300 feet on Mt. Kominjim. This individual was found 20 feet up in steep mountain forest. The stomach contained only insect remains, which is surprising, as the species had been considered entirely frugivorous (Rand and Gilliard, 1967, p. 423).

PACHYCEPHALINAE

Pachycephala schlegelii obscurior Hartert

SCHLEGEL'S WHISTLER; QUONTAS

A series of three males, four females, and one immature were collected on Mt. Kominjim. Weights: 22-25; immature, 20.5.

Pachycephala modesta hypoleuca Reichenow

BROWN-BACKED WHISTLER; MARTIN-DIVAN

Six males, one female, and one immature were collected on Mt. Kominjim. Weights: 18-21.5.

The immature specimen differs from the adults in having the upper parts tinged with olive and the abdomen with a pale yellow wash. There are traces of rufous in the wing coverts and in a band on the upper breast.

This species was observed in a party of birds that also included *Rhipidura albolimbata* and *Melipotes fumigatus*. It was the least obvious member of the flock and hunted insects in the subcrown of steep hill forest. Once one of these birds was observed to hop, creeper-fashion, upward for about 6 feet on a sloping limb about 2 inches in diameter.

Pachycephala rufiventris dorsalis Ogilvie-Grant

BLACK-BACKED WHISTLER

One female was collected in the Simbai Valley at 5000 feet. Weight: 77.

Pachycephala rufinucha niveifrons Hartert

RUFIOUS-NAPED WHISTLER; SU-WENK

One subadult female was collected at approximately 7000 feet on Mt. Kominjim. Weight: 37.5.

Colluricincla harmonica tachycrypta Rothschild and Hartert

GRAY SHRIKE-FLYCATCHER

One male was collected at 300 feet at Aiome. Weight: 84.

Pitohui kirhocephalus brunneicaudus (Meyer)

VARIABLE PITOHUI

One male was collected in the crown limbs of secondary rain forest at Aiome. Weight: 84.

A second specimen, preserved in formalin, had a blind left eye. The following notes were made by Gilliard upon examining the specimen: "This eye was covered with a milky white shield (dry, fairly hard, and opaque). I tried to pull the surface forward, thinking it might be a malfunctioning nictitating membrane, but it is the covering of the eye. The right eye is large and clear with a deep maroon iris and gray pupil. The gray of the pupil might indicate incipient blindness. The bird is healthy looking otherwise. Weight: 86 grams."

Jared Diamond has called to our attention the fact that middle Sepik birds from Regenber, Malu, and Hunsteinspitze, which we called *senex* (Gilliard and LeCroy, 1966, p. 266), are actually either *brunneicaudus* or intermediate between *brunneicaudus* and *senex* but closer to *brunneicaudus* (see Stresemann, 1923, pp. 79-80). The specimens from Gaikarobi match the intermediate birds. The Wewak specimen is considerably darker than middle Sepik birds and agrees most closely with the darkest individuals of *brunneicaudus* from Madang. The specimen from Aiome closely matches some of the lighter individuals of the toptotypical Madang series.

LANIIDAE

[*Lanius schach stresemanni* subspecies?]

SCHACH SHRIKE

ARTAMIDAE

[*Artamus maximus* Meyer]

GREATER WOOD SWALLOW

On May 5 Gilliard ". . . observed three greater wood swallows turning and gliding in large circles over the grasslands of the upper Simbai Valley in the hot sun of midafternoon. The birds flew about 200 feet above the valley floor."

STURNIDAE

Aplonis metallica metallica (Temminck)

METALLIC STARLING

Two males were collected from a flock of about 40 birds sitting in a partially dead tree overlooking swamp forest in a gorge near the Aiome airfield. Weights: 61, 64.5.

Mino anais orientalis (Schlegel)

GOLDEN-BREASTED MYNA

One specimen, sex?, was collected at Aiome. Weight: 150. It was one of a pair perched in the top of a partly dead tree in a native garden.

Mino dumonti dumonti Lesson

YELLOW-FACED MYNA

One bird was collected from a flock of five in a tall tree bordering a native garden near Aiome.

CRACTICIDAE

Cracticus cassicus cassicus (Boddaert)

BLACK-HEADED BUTCHERBIRD

One male was collected at Aiome. Weight: 154.

Cracticus quoyi quoyi (Lesson)

BLACK BUTCHERBIRD

One female was obtained at Aiome.

DICRURIDAE

Dicrurus hottentottus carbonarius Bonaparte

SPANGLED DRONGO

Our two males are from Aiome. Weights: 78, 98.

CORVIDAE

Gymnocorvus tristis (Lesson and Garnot)]

GRAY CROW

The following quotation is from Gilliard's ornithological notes for May 11 at Aiome: "A closely grouped flock of five or six flew noisily into the crown of a nearby tree, then perched quietly for a minute before streaming out, one closely following the other to the crown of a tree 400 yards distant. In flight this species has a sad call, much more plaintive and higher pitched than that of a crow." Hence the specific name is appropriate.

PARADISAEIDAE

Manucodia jobiensis rubiensis Meyer

JOBI MANUCODE

One male was collected 25 feet up in swamp forest close to the border of a sago palm forest near Aiome. Weight: 232.

Epimachus meyeri subspecies?

BROWN SICKLE-BILLED BIRD OF PARADISE; GARAG-NAN

Two immature males were obtained at 7600 to 7800 feet on Mt. Kominjim in the top half of mountain rain forest. Both had been eating tree fruits, and one also had bones of tree frogs in its stomach. The iris in both birds was light blue. Weights: 235, 243.

Astrapia stephaniae *feminina* Neumann

PRINCESS STEPHANIE ASTRAPIA; KIS-A-KIS (MALE), BON-DONG (FEMALE)

From Mt. Kominjim we have one adult male, five subadult males, one adult female, and one immature female, collected between 7600 and 8800 feet. From the Kaironk region of the Schrader Mountains we have one adult male, collected between 7000 and 8000 feet. Weights: adult male, 150; subadult males, 139, 155, 158, 158, 164; adult female, 138; immature female, 132.

Our specimens were collected from the tops of trees in the dripping moss forest. The stomachs of most of the birds contained fruits, fruit pits, or vegetable matter, but one bird, in addition, had eaten an inch-long insect, perhaps a dragonfly.

For a discussion of the problem concerning the distribution of the *Astrapia splendidissima-mayeri-stephaniae* group, see Mayr and Gilliard (1952a). With the discovery of the hitherto unknown male of the Schrader *astrapia*, it may be possible to answer some of the questions only tentatively answered by Mayr and Gilliard in 1952.

Our adult males are indistinguishable from males of *Astrapia stephaniae* both in color and in shape and length of tail. One subadult male and one adult male have traces of white on the outer vane of the central rectrices. But such traces of white occur also on some specimens of *A. s. stephaniae* from southeastern New Guinea (Mayr and Gilliard, 1952a, p. 12). Both of our females had the tail in heavy molt, and we were unable to determine whether or not white was present. It is obvious that there is no extensive area of white in the tail of the Schrader population, nor are the rectrices longer and narrower than those of *Astrapia stephaniae*. Thus the Schrader birds are not in an intermediate position between *A. mayeri* and *A. stephaniae*, and we follow Mayr and Gilliard in retaining *A. mayeri* as a separate species.

Astrapia stephaniae *feminina* from the Schraders differs, in the female, from *ducalis* of the Kubor, Bismarck, and Herzog mountains by having the under parts more rufous and less buffy, and by its somewhat shorter

outer tail feathers (Mayr and Gilliard, 1952a, p. 11). We find that the under parts are indeed quite rufous, although they are approached in color by individuals from the Bismarcks. Because the tail of the adult female was in molt, it was impossible for us to determine the relationship between the central and outer rectrices. The wing measures 151.

Possibly, when more females are available from the Schraders, there may prove to be a cline in ventral coloration from rufous in the west to buff in the east.

The differences noted by Mayr and Gilliard in back color between *A. s. stephaniae* and *ducalis* may be due, at least in part, to foxing, since our female is quite black compared to the single Schrader female (collected in 1913) available to us. The older specimen has the feathers of the back brown, with lighter tips, whereas our bird has the back black, with brown tips faintly barred with black.

In summary, we agree with Mayr and Gilliard that *Astrapia mayeri* and *A. stephaniae* should be maintained as separate species to call attention to their former discontinuity of range. We also, rather hesitantly, follow them in recognizing three races of *Astrapia stephaniae*. Only additional freshly collected females can solve this problem.

Diphyllodes magnificus chrysopterus Elliot

MAGNIFICENT BIRD OF PARADISE

Our only specimen, a female, was shot at about 500 feet on the first wooded mountain rise south of Aiome airfield. It was feeding on tree fruits about 30 feet up and just within the edge of the forest.

Paradisaea minor subspecies?

LESSER BIRD OF PARADISE

One female or immature male was collected at Aiome.

Pteridophora alberti buergersi Rothschild

KING OF SAXONY BIRD OF PARADISE; YO-BUNDY

Our two specimens, a female and an immature male, were collected between 7000 and 7600 feet on Mt. Kominjim. Gilliard observed a bird of this species feeding 20 to 35 feet up in a tree in mid-mountain forest. "The bird in female plumage flew in through the middle lower part of thickly cluttered forest, landed on a sloping branch 25 feet above a steep hillside and then worked along the top of the branch out to where it forked and re-forked. There at the base of sprays of leaves were small green berries. The bird picked at these, going from limb tip to limb tip

rather slowly, sometimes pausing to fluff out the plumage, now moving to another limblet, eating small green berries. . . . In using its bill to pick the green berries this species grasped them between the mandibles in the usual manner while standing upright. It sometimes reached 'through' limblets to get at the berries but usually it stood above them in the normal manner."

Short brown occipital plumes are present in both birds (18.5 mm. long in the female, 23 mm. in the immature male). Wing: female, 113; immature male, 122. Weights: female, 73; immature male, 93.

Our female differs from females of *alberti* from the Weyland Mountains in having the markings of the throat less distinct and the throat suffused with buff. It is very similar to females of *hallstromi* from Mt. Hagen. Mayr and Gilliard (1951, pp. 12-13), in naming *hallstromi*, distinguished it from *buergersi* by the more whitish under parts, paler under tail coverts, and longer wing and tail. Our female seems indistinguishable from certain specimens of *hallstromi*, although on the average the differences hold. It has a longer tail (84 mm.) than that of *buergersi* as given by Mayr and Gilliard (79 mm.). We did not have other specimens of *buergersi* at hand to make direct comparison of skins, but, because our female differs from most specimens of *hallstromi*, as stated, it seems advisable to assign our birds to *buergersi* and to depend on future collecting to show just how wide the overlap is between the population from the Schrader Mountains and that from the Central Highlands.

PTILONORHYNCHIDAE

Amblyornis macgregoriae macgregoriae De Vis

MACGREGOR'S GARDENER BOWERBIRD; KUNG-UMP

A female and an immature male were collected in the crown of ridge forest on Mt. Kominjim between 7600 and 7800 feet. One had been eating purple fruits with large pits. Weights: female, 140; immature male, 134.

Chlamydera lauterbachii lauterbachii Reichenow

LAUTERBACH'S BOWERBIRD; Pi-ah-vu

The main objective of the 1964 expedition in the Aiome region was to ascertain whether or not the type specimen of *Chlamydera l. lauterbachii* collected by C. Lauterbach in 1896 on the I Ramu Expedition was in fact an aberrant specimen, as had been proposed by Mayr (*in* Gyldenstolpe, 1955, p. 147). Lauterbach obtained his specimen on the Jagei River (=Ramu River). Gilliard examined this type in Berlin shortly

before going to New Guinea in 1964, and was of the opinion that the bird was normal. The grasslands near the Aiome Patrol Post on the Viginants River, a tributary of the Ramu, seemed a promising locality at which to search for the elusive bowerbird.

On May 12 an occupied bower was reported which, from its shape and ornaments, seemed to be a bower of *Chlamydera cerviniventris*. Not having found the bower of *C. lauterbachii*, Gilliard decided to try filming the courtship of *cerviniventris* in depth. On the fourth day of observation a bird appeared at the bower; Gilliard describes the arrival in his notes: "About a minute earlier rustling and wing thrashing were heard in the bushes over the bower. Watching carefully through my peephole I was suddenly shaken by the sight of a red-headed *Chlamydera*. It perched on a slanting shaft of a sapling some 3 feet behind the bower and peered alternately at the bower and at my blind. Soon it jumped to the ground and then to the top of the bower wall (where I made my first photos of it). Then it pulled violently at the bower, pulling up sticks and seeming to destroy the workmanship.

"About now a second red-headed bird arrived and quietly took up a position at the far entrance of the bower. Now for nine minutes the male displayed to the female as she sat in the entranceway in a squatting position.

"The male frequently twisted his head away from the female and seemed to be looking directly backward over his tail at me. His head was twisted in his backward position so that one eye angled steeply upward.

"He now began mouthing the green ornaments, picking them up and dropping them at the east entrance of the bower while the female squatted nearly motionless at the west entrance, looking through the avenue at the male. Usually the male held up the large olive-sized berries, but several times he picked up a cluster of green berries, holding them by the main stem so that they protruded to one side of his bill as a many-spotted green ornament. He would hold this ornament low while he himself was standing high and bending over, so to speak.

"A movement which I saw 10 to 12 times was wide gaping; the mouth appeared rose (?) inside. This yawning or gaping seemed uncontrollable, and it was often accompanied by head twisting so that the male appeared contorted and somewhat stooped.

"Another movement seen about five to seven times was a tail flaring on one side only; the male would turn the head backward, then flare one side of the tail—if he turned his head backward to the right (as he always did while I watched) he flared the right half of the tail so that

it fanned outward toward the head. This seemed almost a stretching or anting posture; the male was almost certainly 'out of control' as these movements occurred. He had been transported into a pattern of movement which seemed to have to run a regular course. Now he paid no attention to me, to the female, or to my camera; he just blindly displayed with green ornaments, seeming even unsure of his footing.

"The female stood up toward the end of the display period. She moved a few inches into the 'avenue,' then backed out and flew off. The male disappeared at this time."

The above display was recorded on still color film under most adverse conditions of light and humidity, but the birds were not collected as it was hoped that moving pictures could be made of the display. Then followed 10 days of almost constant attendance at the blind, in which only an individual of *Chlamydera cerviniventris* appeared at the bower, built and repaired the walls, and replaced ornaments. It was obviously the owner, and the red-headed bird was not seen again. Then on the fourteenth day of observation, one day before the expedition was scheduled to leave Aiome, the red-headed bird returned to the bower and was collected by Rambur.

The Fawn-breasted Bowerbird, *Chlamydera cerviniventris*, had been observed building in the typical two-walled *cerviniventris* bower on nine of the 14 days of observation, and there was always evidence of early morning berry shifting, so that it is probable that it visited the bower daily. On the other hand, *C. lauterbachii* was seen in the bower only on two of the days; on the first occasion aggressive destruction of the bower and display to the female occurred during the same visit. Because the bower form is quite different from the four-walled structure built by *Chlamydera lauterbachii* elsewhere in its range, it is probably safe to say that aggressive action on the part of *C. lauterbachii* on the bower of *C. cerviniventris* "sparked-over" into a sexual display in the presence of the female.

Gilliard recorded in his notes that, while watching a *C. cerviniventris* bower near Bogadjim at the base of the Finisterre Mountains in 1956, he had seen "a reddish-headed bird at a '*C. cerviniventris*' bower. That bird twisted and gaped just as did this one, but it pumped the body up and down with ornaments in the bill, a thing which I did not see this [Aiome] bird do. I then had been deeply disappointed to see only a *C. cerviniventris* come to this bower [thereafter]. . . . I was searching for *Sericulus bakeri* and I thought that perhaps I had found it. . . . That bower was in a situation very much like this one; it also had two walls and was ornamented with small green berries on the top of the bower

walls and large green berries on the bower stage at one entrance. I now suspect that I did actually see a red-headed *Chlamydera*, not *S. bakeri*." It is thus possible that this red-headed race of *C. lauterbachii* occurs in the Finisterre region.

Our specimen is an adult male with enlarged testes; it differs from other specimens of *Chlamydera lauterbachii* in the American Museum in having the crown, forehead, and sides of the face a coppery color instead of the greenish gold characteristic of birds from other parts of the species range. The lower breast, abdomen, flanks, and under tail coverts are bright golden yellow, with only faint indications of barring on the sides and flanks. Other specimens of this species are buffy yellow below, with more extensive barring.

For a taxonomic treatment of the species see Gilliard (in press).

It is of interest that the two New Guinea species of *Chlamydera* are known to occur sympatrically only in the Aiome area. The range of *Chlamydera lauterbachii* extends from the Ramu River westward through the lowland gulch north of the main mountain ranges to the area of Geelvink Bay and then eastward on the south coast to the Kamura River and perhaps as far as the Digul River. It has reached the Wahgi Valley, perhaps by way of the Sepik Valley and Hybrid Gap, where there is a grassland link between the two valleys (see Mayr and Gilliard, 1954, pp. 321, 365). The most westward record of *cerviniventris* in the south is from Kurik on the Kumbe River, northwest of Merauke (Hoogerwerf, 1964, pp. 158-159). It is found in southeastern New Guinea and along the northern coast at least to Humboldt Bay and Sentani Lake. It is also found on the Vogelkop (*loc. cit.*). As mentioned above, the two species possibly come into contact in the foothills of the Finisterre Mountains. They may also meet on the south coast.

The Aiome bird had eaten blue tree fruits with hard pits. The iris was dark brown, the bill black, and the feet pale yellowish olive. Wing: 130; tail: 103; tarsus: 40; exposed culmen: 23. Weight: 135. The body was saved.

[*Chlamydera cerviniventris* Gould]

FAWN-BREASTED BOWERBIRD; TOMAGLIANAM

Observations, photographs, and films were made of this species, as it repaired and decorated its bower, over a period of 14 days, as noted above. The bird appeared on nine of these 14 days, and it also came several to many times each day to perch and call in the trees immediately over the bower. During the last two days of observation, the bird did not come to the bower, and no specimen was collected.

Ailuroedus buccoides geislerorum Meyer

WHITE-EARED CATBIRD

A male and a female White-eared Catbird were collected at Aiome. The stomach of the male contained green fruits with hard, irregular seeds. Weight: male, 277.

NEOSITTIDAE

Daphoenositta miranda subspecies?

PINK-FACED NUTHATCH; SUP-SUP

Four specimens of this extremely localized species were collected on Mt. Kominjim at about 8300 feet. Small flocks were seen almost daily as they searched for food along the tops and sides of mossy limbs. They moved slowly through the forest, with much fluttering, exposing the white bar on the remiges as they did so.

The following is quoted from Gilliard's journal for May 3: "Have just watched a small band (4?) of this species as it worked through the highest limbs of the subcrown of mountain forest. Two things I noticed that I had not seen before: (a) in flight across an opening in the crown of the forest this species flies then glides alternately like a woodpecker, but the glides are less frequent; (b) in searching for prey this creeper seems never to run along under the limbs, but only on the tops, and frequently to lean down and scan, and even cling under the limb while feeding. Its movements are unhurried, but it moves from tree to tree and, in short jumping flights, from limb to limb quite quickly and methodically.

"Also I noted that this species often scales pencil-sized dead limbs to their tips, circling them as it climbs and pausing at the tips to scan any broken parts before jump-flying to a nearby limb."

Our birds differ somewhat from each of the three races known from New Guinea. In the extent of red on the forehead and throat they agree most closely with *kuboriensis*, which is intermediate in this respect between *miranda* and *frontalis*. The Schrader birds have the red on the forehead and throat more wine-red and the tips of the outer rectrices more pinkish than do the other populations. We think, however, this red color may change with age since specimens of *kuboriensis* described as having the red more pinkish do not now appear so. For this reason we refrain from naming the Schrader population at this time.

In addition to insect remains, two stomachs contained grubs or worms. Weights: male, 17.8; females, 15.5, 16; immature female, 16.

NECTARINIIDAE

Nectarinia sericea sericea (Lesson)

BLACK SUNBIRD

Our four males were collected near Aiome. Weights: 8.6, 9, 9, 9.

Mees published a revision of *Nectarinia sericea* in 1965. Later (1966, p. 256) he stated that *Nectarinia sericea* was apparently preoccupied and that *N. aspasia* should be used for this species (see also Hachisuka, 1952). We follow Rand (*in* Peters, 1967, p. 258), however, who gave the publication date of *aspasia* as later than that of *sericea*.

Nectarinia jugularis subspecies?

YELLOW-BELLIED SUNBIRD

A male and a female were collected at Aiome. The male is indistinguishable in color and size from the male of *idenburgi*, considered by Rand (1940, p. 12) to be a race of *N. jugularis*. Our male bird measured: Wing, 52; tail, 32; tarsus, 16; culmen from base, 22. The female, on the other hand, is indistinguishable from females of *N. jugularis frenata*, widespread in New Guinea coastal areas, and at low altitudes in forest edge, and second-growth habitats (Rand, 1942, p. 501). It is quite different from females of *idenburgi* in being much brighter yellow beneath, without a paler throat. The back of our specimen is brighter, more yellow-green, with a green, not gray, head. There is a distinct yellow eye stripe, and there is more and purer white in the tail. Wing, 51; tail, 32; tarsus, 15.5; culmen from base, 21.

These two birds present an obvious dilemma if present nomenclature is followed. It appears to us that there are two alternatives. The Aiome population may represent an unnamed third subspecies of *N. jugularis* from New Guinea in which the male is like the subspecies *idenburgi* and the female like *frenata*, or two separate species may be involved. The subspecies *idenburgi* appears to be closely related to *N. clementiae*, both male and female being similar to those of subspecies from the south Moluccas, the Southeast Islands, and the Kei Islands. There have been numerous discussions in the literature on the relationships between *N. jugularis* and *N. clementiae* (e.g., Rensch, 1931; Stresemann, 1939; Rand, 1940; van Bemmelen, 1948), and it is useless to speculate further on just what the relationship may be. Only further collecting can show whether, in fact, two species live sympatrically in the Ramu Valley.

MELIPHAGIDAE

Glycichaera fallax Salvadori

WHITE-EYED HONEYEATER

Three specimens of this uncommon honeyeater were obtained at Aiome. Weights: males, 9, 9.5; female, 9.3.

We have examined specimens of *G. f. sylvia* from northern New Guinea and of *fallax* from eastern and southern New Guinea and believe that differences are too slight to warrant recognition of *sylvia*. Measurements of the culmen from the base, of a series of specimens from southeastern New Guinea, were: males, 14.5–16; females, 14–16. A series from northern New Guinea measured: males, 14.5–15; females, 14–14.5.

Myzomela rosenbergii rosenbergii Schlegel

BLACK-AND-RED HONEYEATER; SEP, WARCOMPANA

Our two males and one female were obtained at 8300 feet on Mt. Kominjim. Weights: Males, 10, 14; female, 9.

We can find no consistent differences by which to recognize the subspecies *wahgiensis*.

One individual was observed hopping about 30 feet up in the small heavily leaved branches growing near the trunk of a medium-sized forest tree. It moved with only short pauses until it reached a small, trumpet-shaped, white, tree flower. It then clung under the flower and inserted its bill into it.

Toxorhamphus novaeguineae novaeguineae (Lesson)

YELLOW-BELLIED LONGBILL

One male was collected in the substage of swamp forest near Aiome. Weight: 12.5.

Melilestes megarhynchus stresemanni Hartert

LONG-BILLED HONEYEATER

Our single male, from 500 feet, was obtained near Aiome. Weight: 51.

Melipotes fumigatus goliathi Rothschild and Hartert

COMMON MELIPOTES; MENNA

Our four specimens, one male and three females, were obtained on Mt. Kominjim between 7600 and 8600 feet. Wing: male, 116; females, 104, 105, 109. Tail: male, 103; females, 90.5, 92, 93. Weights: male, 64; females, 53, 55, 59.

The stomach of one specimen contained one large green fruit and many small flower parts; another contained only flower parts.

"[On Mt. Kominjim Gilliard] observed a solitary bird feeding as follows: It repeatedly flew to the larger limblets (pencil sized) that slanted upward and outward to the upper sides of trees mostly in the middle third (but sometimes lower or higher) of tall mountain forest (and facing my recently cut small forest clearing). It then would hop along the upper sides of the limblets to the limit of their strength and while still standing upright (never falling under or swinging under the tendril limbs bearing the leaves, etc.) it would bend forward low, twirl the head about, and pick at food in the tip leaves above the limblets. The naked yellow face of this species and its sooty and gray coloration are clear field marks."

This species was observed to be part of a mixed flock which also included *Rhipidura albolimbata* and *Pachycephala modesta*.

Melidectes belfordi schraderensis, new subspecies

BELFORD'S BLACK-BILL; NOR

TYPE: A.M.N.H. No. 792681; adult male; Mt. Kominjim, 8300 feet, Schrader Mountains, Territory of New Guinea; April 28, 1964; E. Thomas Gilliard.

DIAGNOSIS: Differing from all subspecies of *M. belfordi* in having face lemon-yellow in life, not blue. In other characters, nearest to *kinneari* from the Nassau, Oranje, and Snow mountains [we are including the birds from the Snow Mountains provisionally assigned to this subspecies by Rand (1942, p. 505)], agreeing in general size and coloration. Differing from *belfordi* and *brassi* in being generally somewhat lighter gray, with less prominent white feather tips on abdomen. Differing further from *belfordi* in being smaller (see table 1). Differing from *joiceyi* in having under parts grayer, less brownish, and in having more of an olive wash on upper parts.

OTHER SPECIMENS COLLECTED: One sex?, 7600 feet, Mt. Kominjim. Two alcohol specimens, sex?, 8300 feet on Mt. Kominjim. Culmen measurements of these two birds: 34.5, 35.

REMARKS: In the prepared skins the difference in facial coloration is easily seen. Skins of all the subspecies not of hybrid origin (see Gilliard, 1959), and thus variable in this character as well as others, have the face with at least some blackish or bluish pigmentation. This usually covers the entire face except for the eyelid. Two fledglings (one *kinneari* and one *belfordi*) in the American Museum collection have the face very light, but there is some blue even in these young birds. There is

no indication of blue in either of our specimens or in the preserved birds. Specimens collected by R. Bulmer in the upper Kaironk Valley also have the facial skin yellow.

Gilliard's collecting was done in a relatively undisturbed area, and there seems to be little evidence of hybridization. The type of *schraderensis* has some faintly yellow feathers in the superciliaries and ear coverts, but

TABLE 1
MEASUREMENTS (IN MILLIMETERS) OF *Melidectes belfordi* COMPILED FROM
VARIOUS SOURCES

	Wing	Tail	Exposed Culmen
<i>joiceyi</i>			
Males	126-142	107-118	28-32
Females	115-133	97-110	27-31
<i>kinneari</i>			
Males	130-151	123-130	30-35
Females	116-135	114-121	28-33
<i>schraderensis</i>			
Males	137, 144	120, 127	32-39
Females	141	117	34, 35
Sex(?)	131	113	35
<i>brassi</i>			
Males	139-144	119-125	33-35
Females	123-139	108-123	31-32
<i>belfordi</i>			
Males	145-153	124-136	35-40
Females	133-140	115-123	33-37

we can see no signs of introgression otherwise. The yellow face seems to us to be due to loss of blue pigment, rather than introgression, since non-blue parts of the face in other races of *belfordi* are yellow, and the face in *rufocrissalis* is "whitish tinged aqua."

Bulmer, who has very kindly allowed us to use his notes and manuscript on this species, found that in the Kaironk Valley there is some indication of hybridization. Of 44 specimens of *Melidectes* that he collected or examined, 21 could be positively placed as *belfordi* and 23 as *rufocrissalis*. Three specimens of *belfordi*, however, had single traits suggesting introgression. One had the facial skin slightly greenish yellow, not bright yellow; one had yellow superciliaries; and one had very small throat wattles. Two specimens of *rufocrissalis* had no throat wattles, although one of these had small, bare, yellow patches of skin where the wattles would have been. Bulmer's informants considered both of these

birds immature, but Bulmer could find no evidence that either was, although the gonads of both were undeveloped.

Gilliard did not hear *M. belfordi* in the forests below 7600 feet, although it was one of the noisiest birds of the higher forests and was heard all the way to the summit of Mt. Kominjim. According to Bulmer: "In the upper Kaironk both species are very common. *Melidectes belfordi* is found in the mountain forest on the northern (Schrader) side of the valley, particularly in the *Nothofagus* forest from about 7500 feet upward. *Melidectes rufocrissalis* is found on both sides of the valley in timbered garden areas, bush-fallow and forest up to about 7500 feet, though occasionally higher (seen at 7800 feet at Gulkm) where clearings have been made and the forest has been much disturbed by man." The occurrence of both *M. belfordi* and *M. rufocrissalis* (see below) on the same mountain, apparently excluding each other altitudinally with evidence of only minor hybridization in ecologically disturbed areas, indicates that these two forms should be treated as species as proposed by Gilliard (1959, pp. 23-24) but not accepted by Salomonsen (*in* Peters, 1967, pp. 417-418).

Bulmer noted that both species of *Melidectes* frequent blossoming and fruiting trees. Both also take considerable quantities of insects, hunting these high up in the trees.

On April 26 a nest, with a nestling about five days old, was brought in by a native. He said it was found about 30 feet up in a tree fork in mountain forest. The young bird was preserved in alcohol.

RANGE: Schrader Mountains.

Melidectes rufocrissalis rufocrissalis (Reichenow)

REICHENOW'S WATTLE-BIRD; NOR

Our seven specimens (five males and two females) are indistinguishable from *rufocrissalis* and are pure wattle-birds (see Mayr and Gilliard, 1952c, and Gilliard, 1959). Wing: Males, 135, 136, 138, 142; females, 124, 128. Culmen from base: Males, 43.5, 45, 45, 46, 46.5. Weights: Males, 77, 78, 79, 80; females, 61, 69.

All these individuals were obtained between approximately 5000 and 7000 feet. The species was abundant in the clumps of mixed trees, mostly native-planted casuarinas, which are a feature of the grasslands of the Simbai Valley, and in the trees bordering streams in the grasslands. It also occurs in the disturbed forest edges and perhaps higher in the forests along open ridges where the forest is not thick. It was never seen at the 8300-foot camp on Mt. Kominjim.

Oreornis subfrenatus melanolaema (Reichenow)

BLACK-THROATED HONEYEATER; KENDUI

Two specimens, a male and a female(?), were collected on Mt. Kominjim between 7000 and 8300 feet. Weight: Male, 31.

Xanthotis chrysotis philemon Stresemann

BROWN XANTHOTIS

Three specimens, all females, were collected at Aiome. One, collected on May 8, was near ovulation. Weights: 44, 45, 47.

Meliphaga aruensis sharpei (Rothschild and Hartert)

PUFF-BACKED MELIPHAGA

Our single male was collected at Aiome. Weight: 27.5.

Meliphaga analoga flavida Stresemann and Paludan

MIMIC MELIPHAGA

Our single male was obtained at Aiome. Wing: 80; weight: 22.

As we noted previously (Gilliard and LeCroy, 1967, p. 78), the differences between the races *connectens* (Salomonsen, 1966, p. 5) and *flavida* are slight. A re-examination of the available material convinces us that the subspecies *connectens* should not be recognized.

Ptiloprora guisei umbrosa Mayr

RED-BACKED STREAKED HONEYEATER; KEY

Six specimens, three males, two females and one sex?, were collected on Mt. Kominjim between 7600 and 8300 feet. Weights: Males, 22, 23, 28; females, 20.5, 21.

Philemon meyeri Salvadori

MEYER'S FRIAR BIRD

One female was collected at Aiome. Weight: 54.

Philemon novaeguineae jobiensis (Meyer)

LEATHERHEAD

Our two males and one female were collected at Aiome. One male, probably immature, had a faint wash of yellowish buff on the lower chest and had the secondaries edged with yellow. Some of the feathers on the back of this individual were white tipped. Weights: Male, 139; female, 137.

DICAETIDAE

Dicaeum geelvinkianum rubrocoronatum Sharpe

RED-CAPPED FLOWERPECKER

Two males were collected at Aiome. Weights: 7, 7.2.

Melanocharis versteri virago (Stresemann)

FAN-TAILED BERRYPECKER; MAINDAVANT

A male and a female were collected on Mt. Kominjim at 8300 feet; an immature male was collected in the Simbai Valley at 5000 feet. Wing: Male, 60; female, 69.5; immature male, 64. Weights: Male, 14.5; female, 17; immature male, 12.

We agree with Salomonsen (1960, p. 14) that *virago* is intermediate between *M. v. meeki* and *M. v. maculiceps* but is separable from both, at least in the males. Our male has the under parts darker than those of *maculiceps* and lighter than those of *meeki*. The extent of white in the tail is 43 mm., measured from the insertion of the central tail feathers to the most distal extent of white. This measurement agrees with Salomonsen's (*loc. cit.*) measurements of *maculiceps* and *virago*. The white in *meeki* is less extensive.

Females of *maculiceps* and *virago* are virtually indistinguishable. Our female differs from females of *meeki* in having the under parts less yellow, the throat with a less streaked appearance, and the outer vanes of the upper surface of the central tail feathers with a blue-black gloss.

The immature male is very similar to the female, but smaller.

Rhamphocharis crassirostris piperata (De Vis)

SPOTTED BERRYPECKER

An adult male of this rare species was collected in the Simbai Valley at 5000 feet. It was found in the crowns of small trees growing among scattered casuarinas and tree ferns in a large patch of trees in grassland. The wing and tail are in heavy molt, but our specimen definitely belongs to the large-billed race, with the culmen measuring 20.5 mm. from the base. The white on the outer rectrices is also quite extensive, measuring 24 mm. Weight: 16.5.

Oreocharis arfaki (Meyer)

TIT BERRYPECKER; WARCOMPANA

Our two males were collected on Mt. Kominjim at 8300 and 8500 feet. Weights: 18.5, 21.

Paramythia montium montium De Vis

CRESTED BERRYPECKER; WARE

A single female of this species was obtained on Mt. Kominjim at 7600 feet.

PLOCEIDAE

Lonchura grandis ernesti (Stresemann)

GREAT-BILLED MANNIKIN

We have one male from Aiome at 200 feet. Wing, 52. Weight: 12.3.

Lonchura spectabilis mayri Hartert

NEW BRITAIN MANNIKIN

Our one example is an adult male from the Simbai Valley at 5000 feet. It has the back and wings more ochraceous than birds that belong to the subspecies *wahgiensis* from the Bismarck, Saruwaged, and Herzog mountains and is similar in color to birds from the Hollandia area that belong to the subspecies *mayri*. The under parts, however, show a more buffy wash than is present on the specimens of *mayri* at our disposal. Because the amount of buff on the abdomen is quite variable in this species, we believe that birds from the Schrader Mountains are probably most closely related to those from the Hollandia area with which they agree in the color of the back and wings. A larger series is needed before any definite statement can be made. Weight: 10.

SPECIES PRESERVED IN ALCOHOL

Examples of the following species have been preserved. An asterisk indicates that there is no study skin.

Ptilinopus coronulatus
Ducula pinon (head)*
Gymnophaps albertisii (head)*
*Macropygia nigrirostris**
*Reinwardtoena reinwardtsi**
*Gallinolumba beccarii**
Micrositta pusio
Larus roratus
Centropus menbeki (head)*
Collocalia esculenta
Collocalia hirundinacea
Collocalia vanikorensis
Dacelo gaudichaud (head)
Merops ornatus
Eurystomus orientalis (head)

Aceros plicatus (head)
Lalage atrovirens
Coracina melaena
*Coracina longicauda**
Crateroscelis robusta
Ifrita kowaldi
Sericornis nouhuysi
Acanthiza murina
Gerygone cinerea
Gerygone magnirostris
*Rhipidura threnothorax**
*Rhipidura atra**
Rhipidura albolimbata
Rhipidura leucophrys
Monarcha chrysomela

Arses telescopthalmus
Machaerirhynchus nigripectus
Microeca papuana
Peneothello sigillatus
*Peneothello cyanus**
Pachycephala schlegeli
Pachycephala modesta
Pachycephala rufinucha
Pitohui kirhocephalus
Aplonis metallica
Mino dumonti
Dicrurus hottentottus
*Paradisaea minor**
Chlamydera lauterbachii (body)

Daphoenositta miranda
Nectarinia sericea
Glycichaera fallax
Myzomela rosenbergii
Melipotes fumigatus
Melidectes belfordi
Melidectes rufocrissalis
Oreornis subfrenatus
Xanthotis chrysotis
Meliphaga aruensis
Ptiloprora guisei
Melanocharis versteri
Paramythia montium

BIBLIOGRAPHY

BULMER, RALPH, AND MICHAEL J. TYLER

[MS.] The classification of frogs by the Karam of the Kaironk Valley, New Guinea. Mimeographed, with date of November 22, 1965.

DIAMOND, JARED M.

1967. New subspecies and records of birds from the Karimui Basin, New Guinea. *Amer. Mus. Novitates*, no. 2284, pp. 1-17.

GILLIARD, E. T.

1959. The ecology of hybridization in New Guinea honeyeaters (Aves). *Amer. Mus. Novitates*, no. 1937, pp. 1-26.

[In press.] Birds of paradise and bowerbirds. London, Weidenfeld and Nicolson, Ltd.; New York, the Natural History Press.

GILLIARD, E. T., AND MARY LECROY

1961. Birds of the Victor Emanuel and Hindenburg Mountains, New Guinea. Results of the American Museum of Natural History expedition to New Guinea in 1954. *Bull. Amer. Mus. Nat. Hist.*, vol. 123, pp. 1-86.

1966. Birds of the middle Sepik region, New Guinea. Results of the American Museum of Natural History expedition to New Guinea in 1953-1954. *Ibid.*, vol. 132, pp. 245-276.

1967. Annotated list of birds of the Adelbert Mountains, New Guinea. Results of the 1959 Gilliard expedition. *Ibid.*, vol. 138, pp. 51-82.

GYLDENSTOLPE, NILS

1955. Notes on a collection of birds made in the Western Highlands, central New Guinea, 1951. *Arkiv för Zool.*, ser. 2, vol. 8, no. 1.

HACHISUKA, M. U.

1952. Change of names among sunbirds and a woodpecker. *Bull. Brit. Ornith. Club*, vol. 72, pp. 22-23.

HOOGERWERF, A.

1964. On birds new from New Guinea or with a larger range than previously known. *Bull. Brit. Ornith. Club*, vol. 84, pp. 70-77, 94-96, 118-124, 142-148, 153-161.

LAUBMANN, A.

1924. Bemerkungen über Eisvögel aus Deutsch-Neuguinea mit besonderer Berücksichtigung der von Dr. L. von Wiedenfeld dortselbst gesammelten Exemplare. Verhandl. Ornith. Ges. Bayern, vol. 16, pp. 3-31.

MAYR, ERNST

1937. Birds collected during the Whitney South Sea Expedition. 33. Notes on New Guinea birds. 1. Amer. Mus. Novitates, no. 915, pp. 1-19.
1941. List of New Guinea birds. New York, the American Museum of Natural History, 260 pp.

MAYR, ERNST, AND E. T. GILLIARD

1951. New species and subspecies of birds from the highlands of New Guinea. Amer. Mus. Novitates, no. 1524, pp. 1-15.
1952a. The Ribbon-tailed Bird of Paradise (*Astrapia mayeri*) and its allies. *Ibid.*, no. 1551, pp. 1-13.
1952b. Six new subspecies of birds from the highlands of New Guinea. *Ibid.*, no. 1577, pp. 1-8.
1952c. Altitudinal hybridization in New Guinea honeyeaters. Condor, vol. 54, pp. 325-337.
1954. Birds of central New Guinea. Results of the American Museum of Natural History expeditions to New Guinea in 1950 and 1952. Bull. Amer. Mus. Nat. Hist., vol. 103, pp. 317-374.

MAYR, ERNST, AND A. L. RAND

1935. Results of the Archbold Expeditions. No. 6. Twenty-four apparently undescribed birds from New Guinea and the D'Entrecasteaux Archipelago. Amer. Mus. Novitates, no. 814, pp. 1-17.

MEES, G. F.

1965. Revision of *Nectarinia sericea* (Lesson). Ardea, vol. 53, pp. 38-56.
1966. A new subspecies of *Anthreptes malacensis* (Scopoli) from the Soela Islands (Aves, Nectariniidae). Zool. Meded., vol. 41, pp. 255-257.

PETERS, JAMES L.

1967. Check-list of birds of the world. Cambridge, Massachusetts, Museum of Comparative Zoology, vol. 12.

RAND, A. L.

1940. Results of the Archbold Expeditions. No. 25. New birds from the 1938-1939 expedition. Amer. Mus. Novitates, no. 1072, pp. 1-14.
1942. Results of the Archbold Expeditions. No. 43. Birds of the 1938-1939 New Guinea expedition. Bull. Amer. Mus. Nat. Hist., vol. 79, pp. 425-516.

RAND, A. L., AND E. T. GILLIARD

1967. Handbook of New Guinea birds. London, Wiedenfeld and Nicolson; New York, the Natural History Press.

REICHENOW, A.

- 1897a. Zur Vogelfauna von Kaiser Wilhelms Land. Jour. für Ornith., vol. 45, pp. 201-224.
1897b. Neue Vogelarten von Kaiser Wilhelms-Land. Ornith. Monatsber., vol. 5, pp. 24-26.
1898. Zur Vogelfauna von Kaiser Wilhelms-Land II. Jour. für Ornith., vol. 46, pp. 124-128.
1918. [Two new forms from New Guinea.] *Ibid.*, vol. 66, p. 244.

RENSCH, B.

1931. Die Vögel von Lombok, Sumbawa und Flores. Mitt. Zool. Mus. Berlin, vol. 17, pp. 451-637.

RIPLEY, S. D.

1964. A systematic and ecological study of birds of New Guinea. Bull. Peabody Mus. Nat. Hist., Yale Univ., no. 19, pp. 1-87.

SALOMONSEN, FINN

1960. Notes on flowerpeckers (Aves, Dicaeidae). I. The genera *Melanocharis*, *Rhamphocharis*, and *Prionochilus*. Amer. Mus. Novitates, no. 1990, pp. 1-28.
1966. Preliminary descriptions of new honey-eaters (Aves, Meliphagidae). Breviora, no. 254, pp. 1-12.

STRESEMANN, E.

1923. Dr. Bürgers' Ornithologische Ausbeute im Stromgebiet des Sepik. Arch. für Natur., vol. 89, no. 7, pp. 1-96; no. 8, pp. 1-92.
1939. Die Vögel von Celebes. Teil 1 und 2. Jour. für Ornith., vol. 87, pp. 299-425.

VAN BEMMEL, A. C.

1948. A faunal list of the birds of the Moluccan islands. Treubia, vol. 19, pp. 323-402.

